

A Journey Into the Future

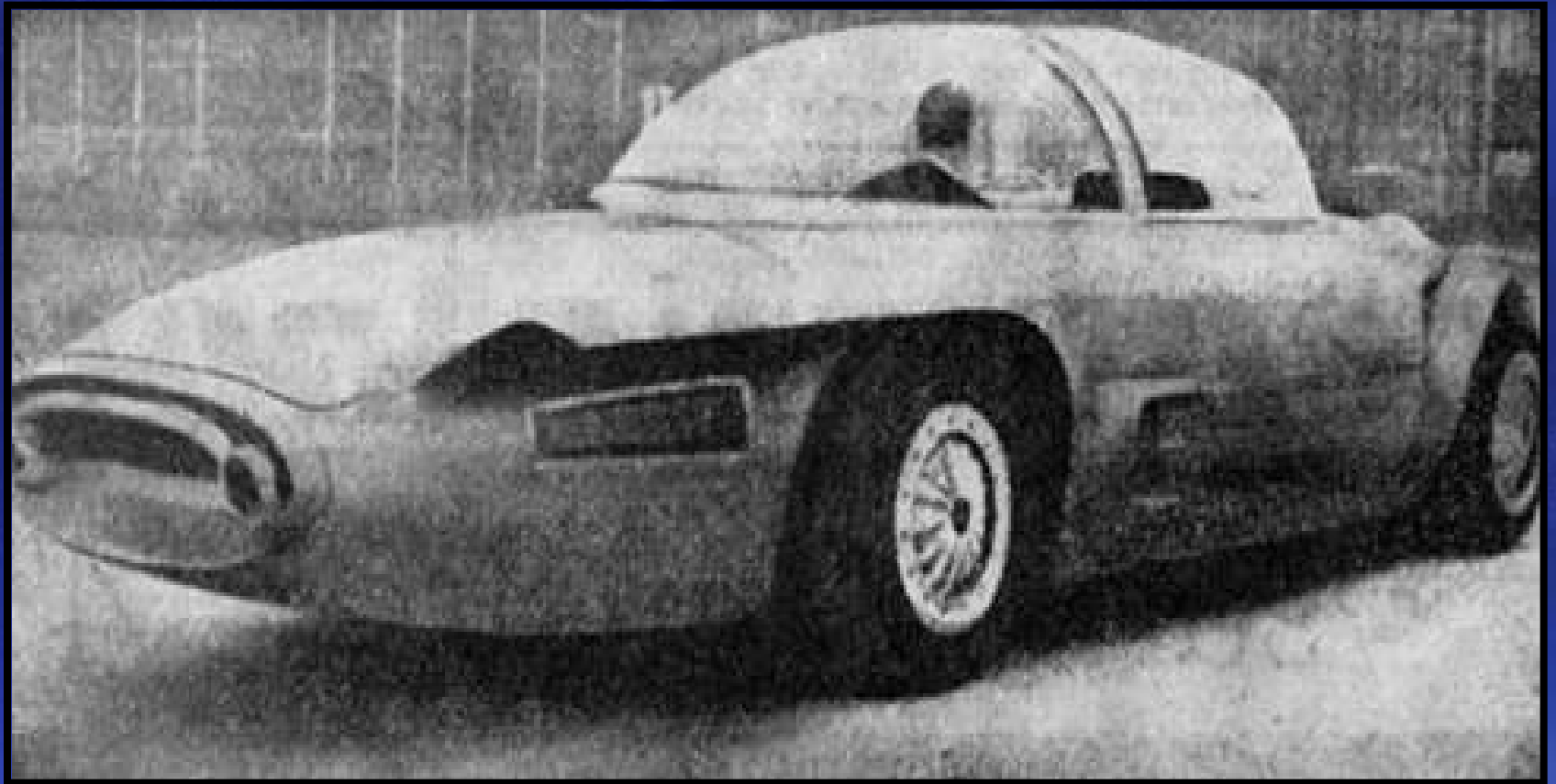


A 50 Year Vision for
Surface Transportation

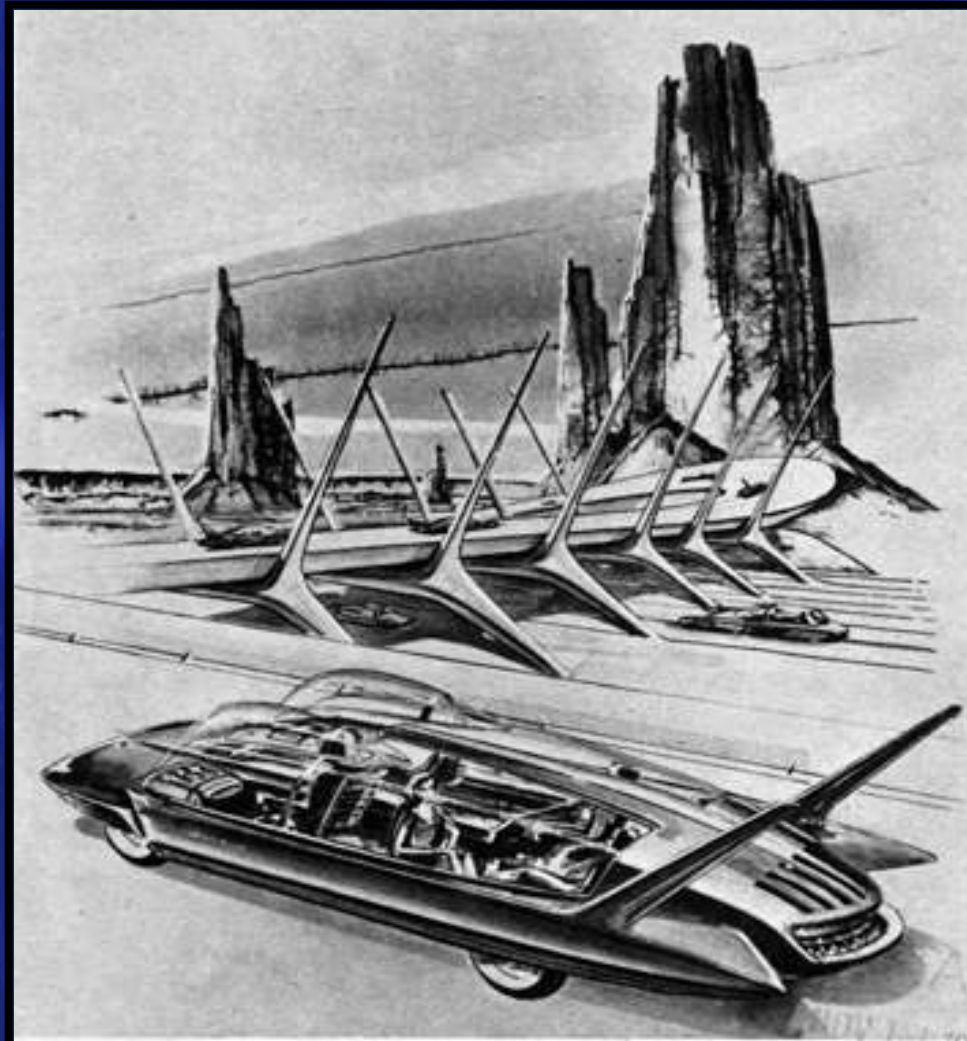
A Journey into the Future

- A look back at 50 years of predictions
- What does the future look like?
 - Future Cars
 - Modern and Evolved Roadways
- How do we deliver the future?

Transportation Future 50 years ago



Transportation Future 50 years ago



NO HANDS—Using electronic systems already demonstrated, cars could steer themselves, set their speed and brake automatically on special radio-equipped highways, as visualized here.

Transportation Future 50 years ago



Transportation Future 50 years ago



CURTISS-WRIGHT MODEL 2500 AIR CAR

Transportation Future 50 years ago



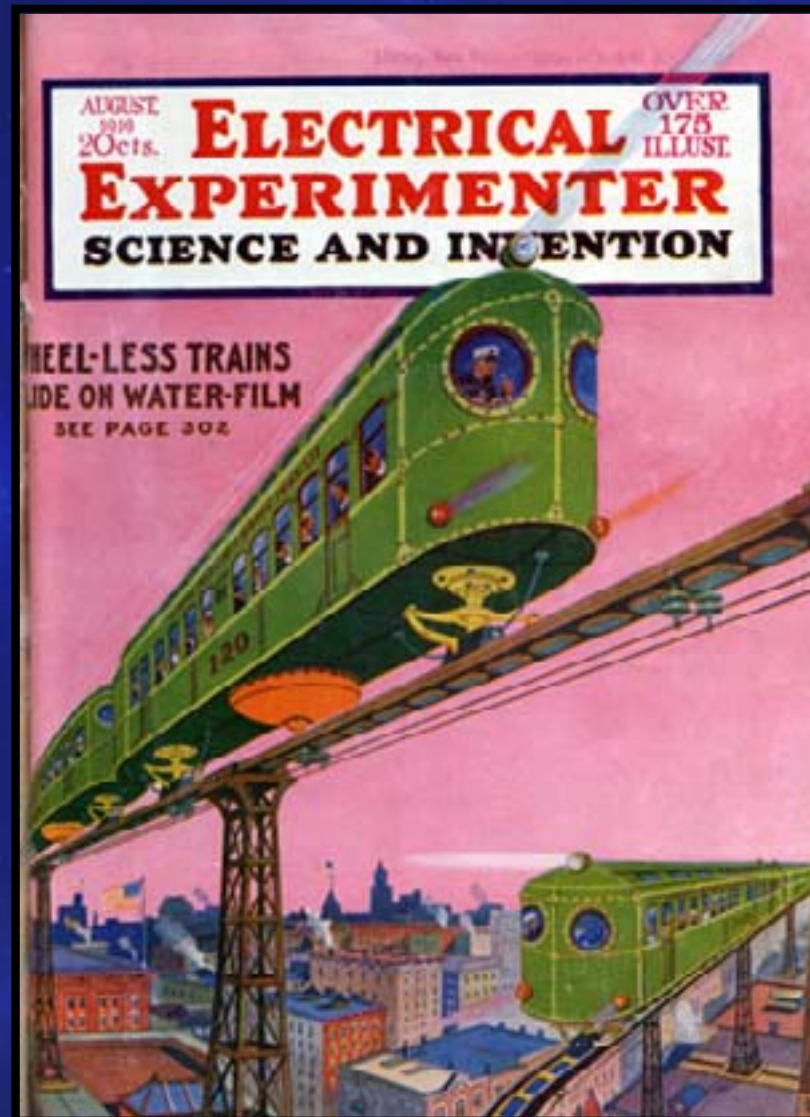
Transportation Future 50 years ago



Transportation Future 50 years ago



Transportation Future 50 years ago





So What Happened?

The Market Happened!

What about the future?

- Cars of the Future
 - Fuel
 - Technology
 - Footprint
- Roadways and their Evolution
 - Technology
 - Financing
 - Operations

Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future



Cars of the Future

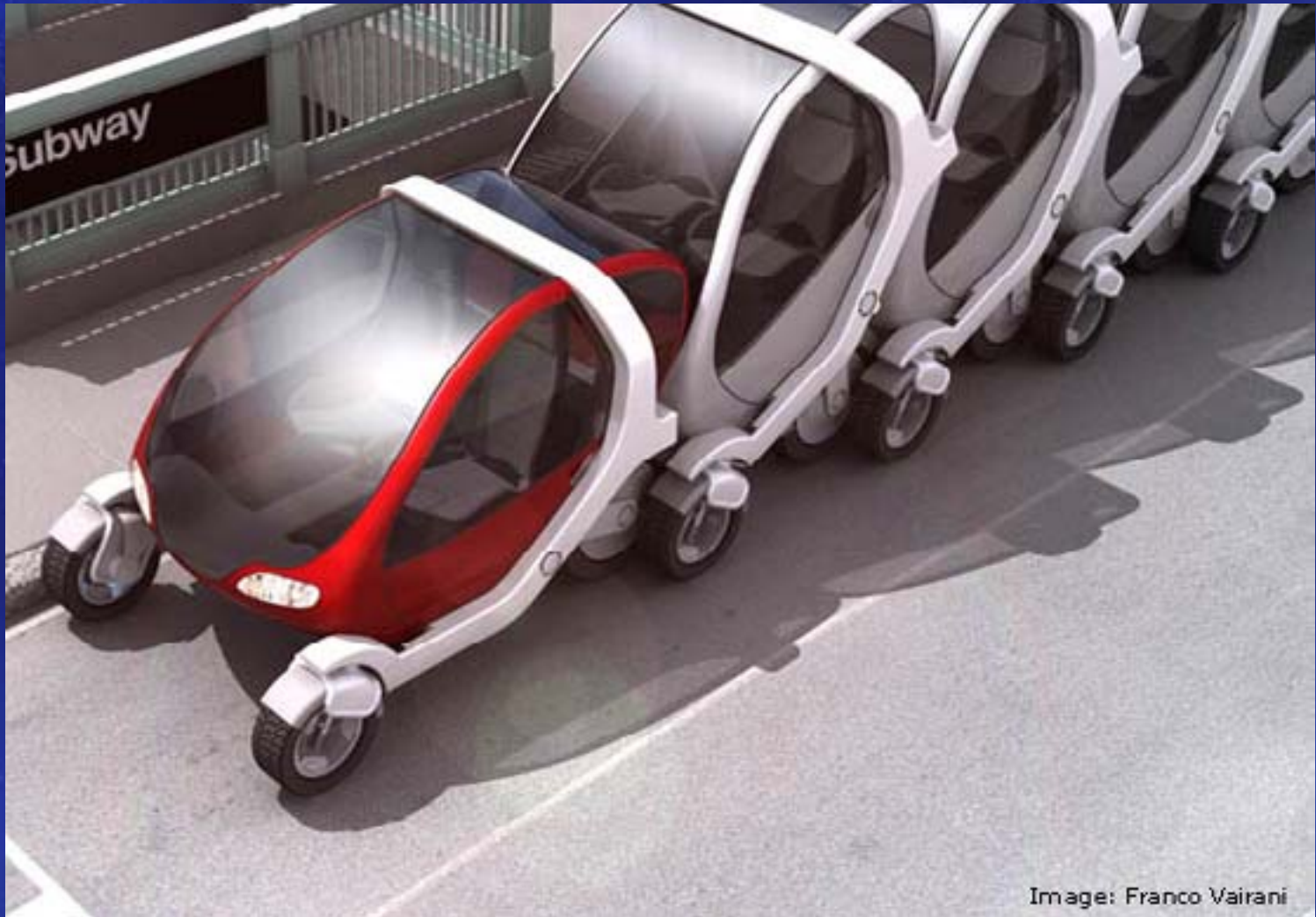
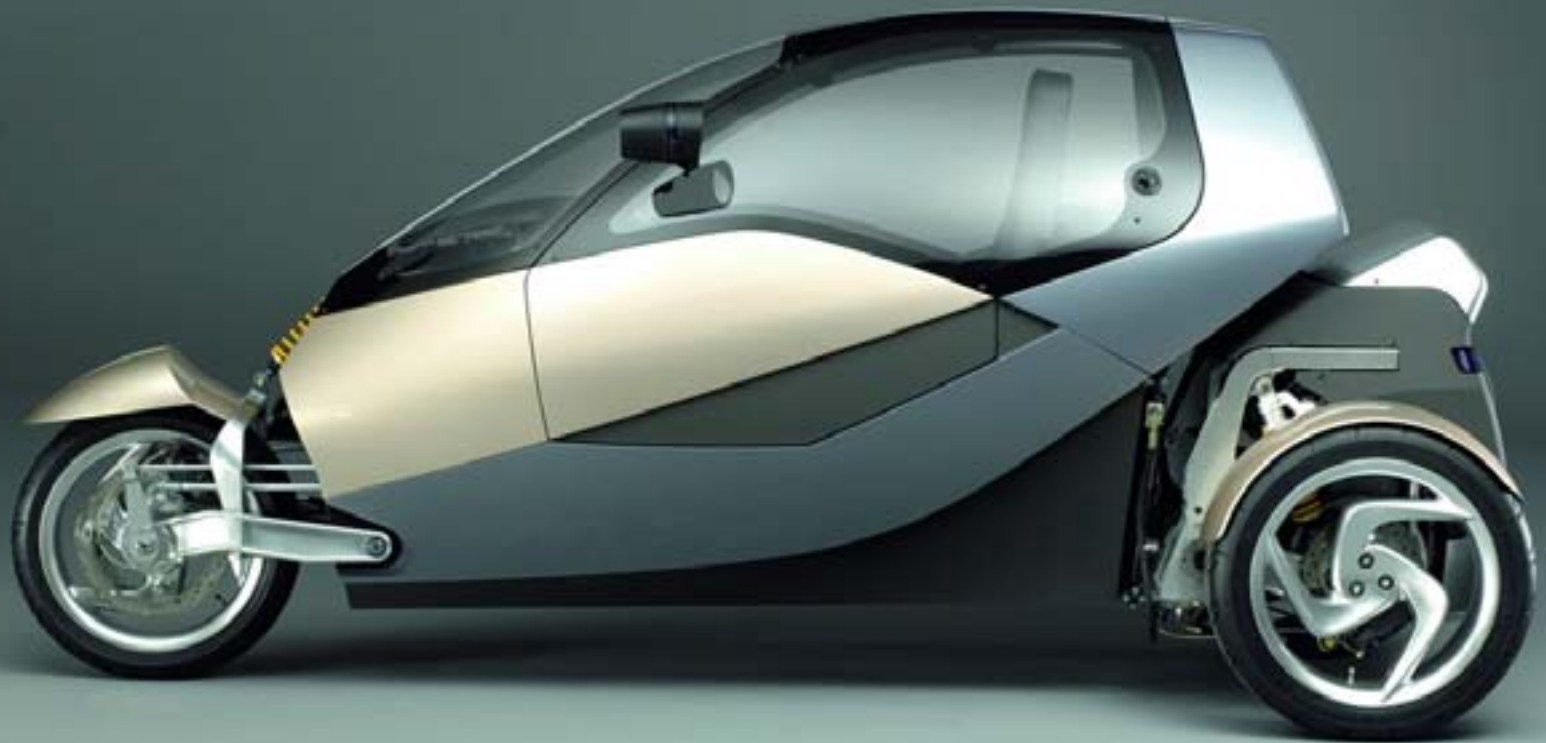


Image: Franco Vairani

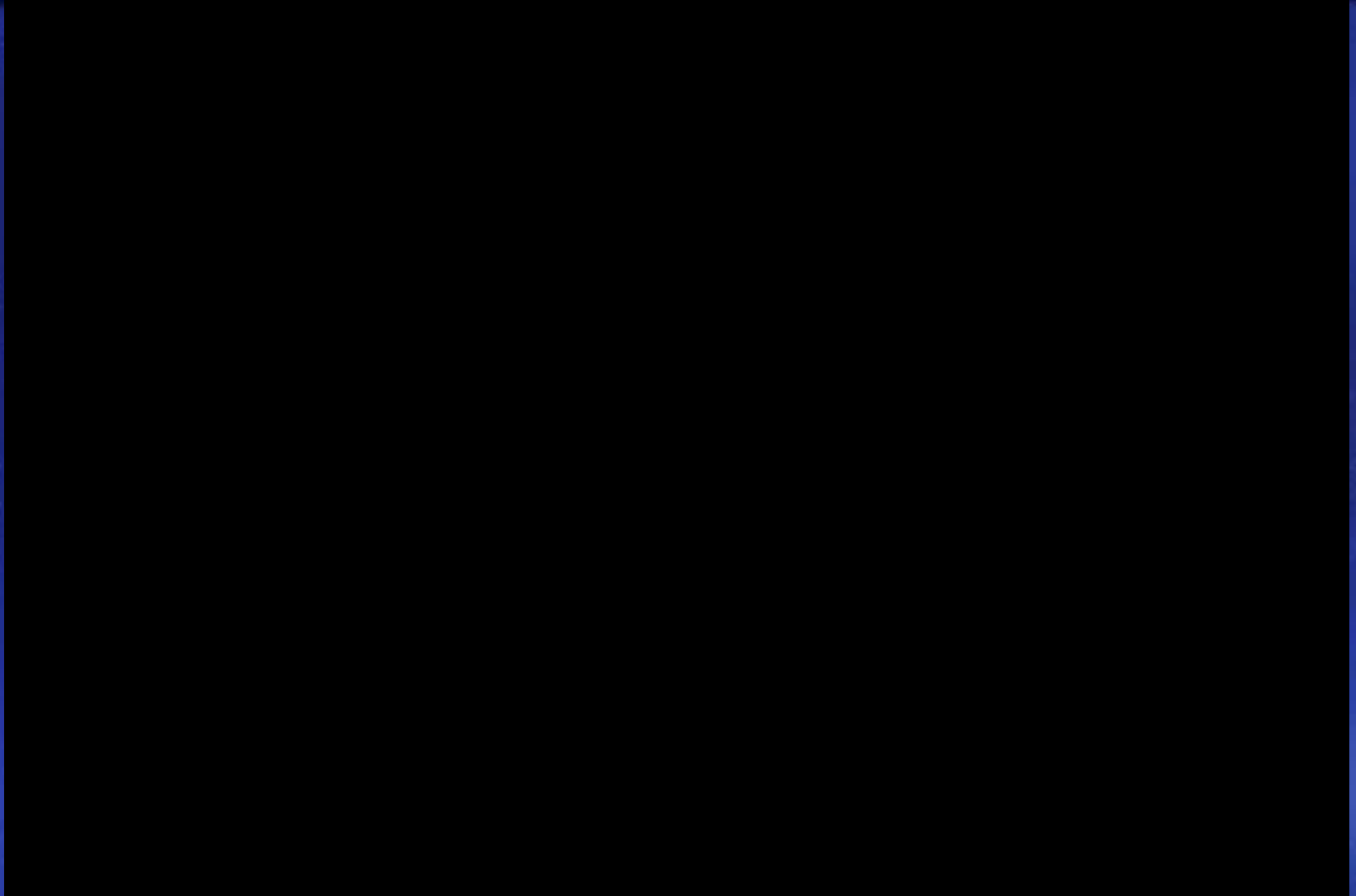
Cars of the Future



What Will Our Cars Look Like?

- FUEL = Electric / Hydrogen / Hybrid / Other
- TECHNOLOGY = “Information Automatrix”
 - Adaptive Cruise Control
 - Lane Centering
- FOOTPRINT = Smaller / Specialized Cars

Cars of the Future



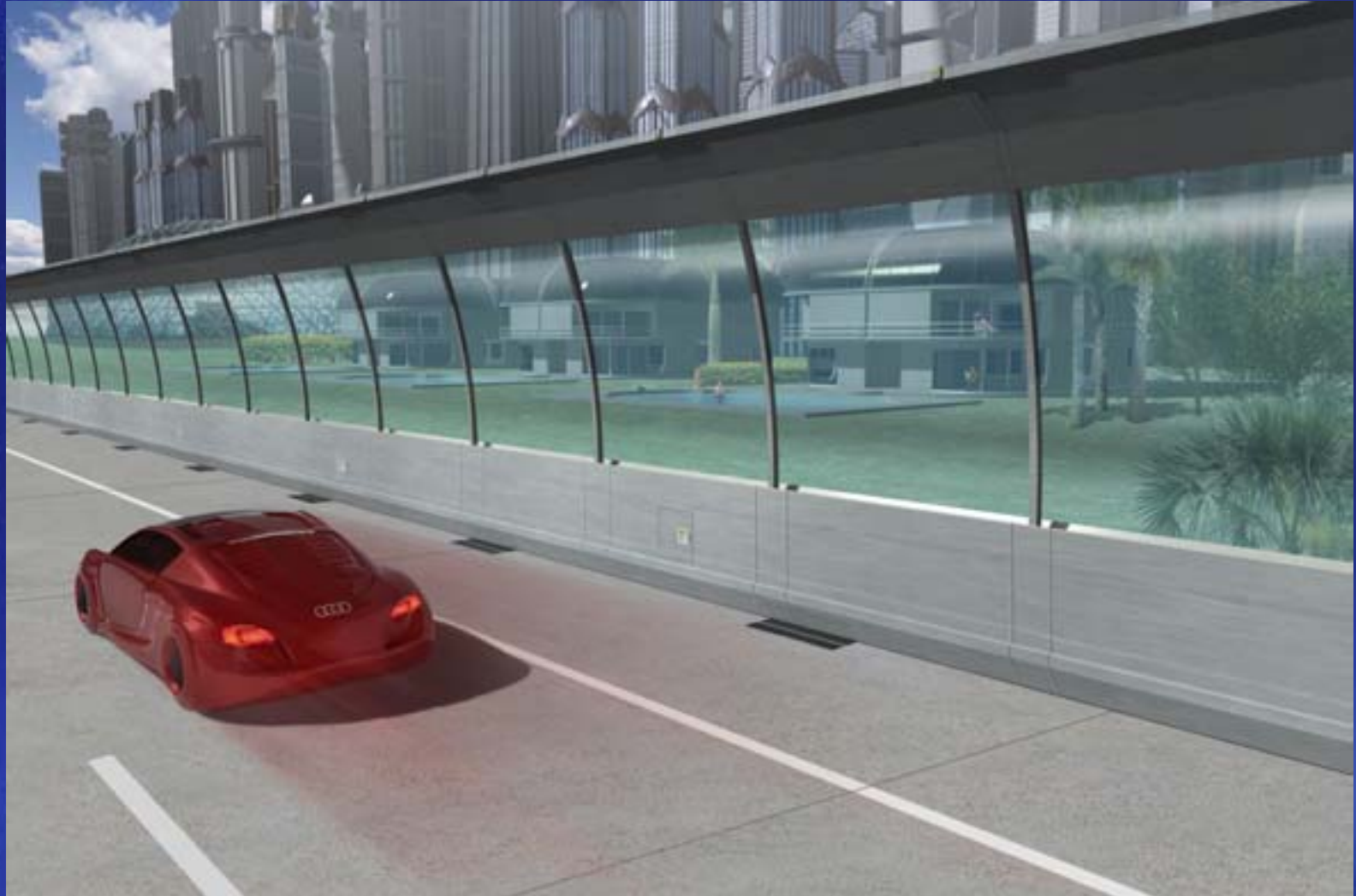
What Will Our Roads Look Like?

- What do our Customers look like?
 - Smaller, interconnected cars running on various fuels
- What do our Roads look like?
 - Lane widths that vary and have reversibility
 - Roads will communicate with the cars
 - Automated speed control
 - Heads-up Signage

What will our Roadways look like?



What will our Roadways look like?



What will our Roadways look like?



What will our Roadways look like?

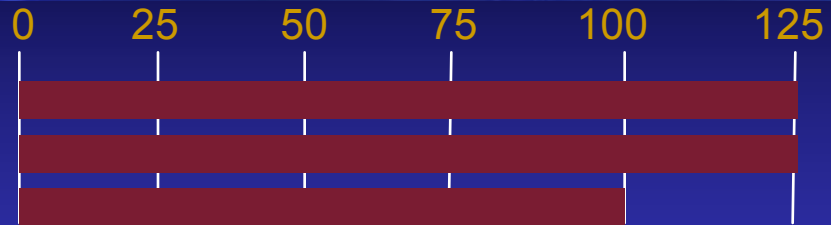


High-Tech Leapfrog

Number of years after invention for selected technologies to reach 80% country coverage

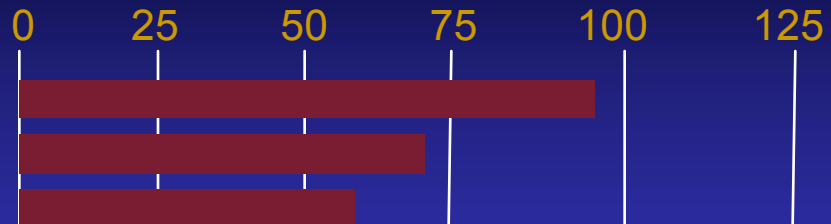
1750-1900

Railways
Steel (open-hearth furnace)
Telephones



1900-1950

Steel (electric-hearth furnace)
Radio
Aviation



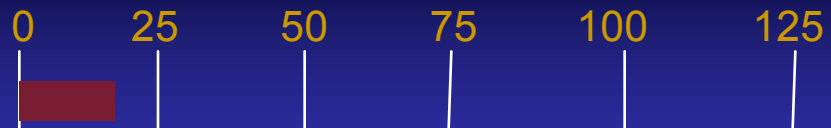
1950-1975

Personal computers
Internet use
CAT scan



1975-2000

Mobile phones



How Will we Finance Our Roads?

- What do our Customers look like?
 - Cars running on various fuels
- What do our Roads look like?
 - ALL ROADS ARE TOLL ROADS

Why is this the future ?

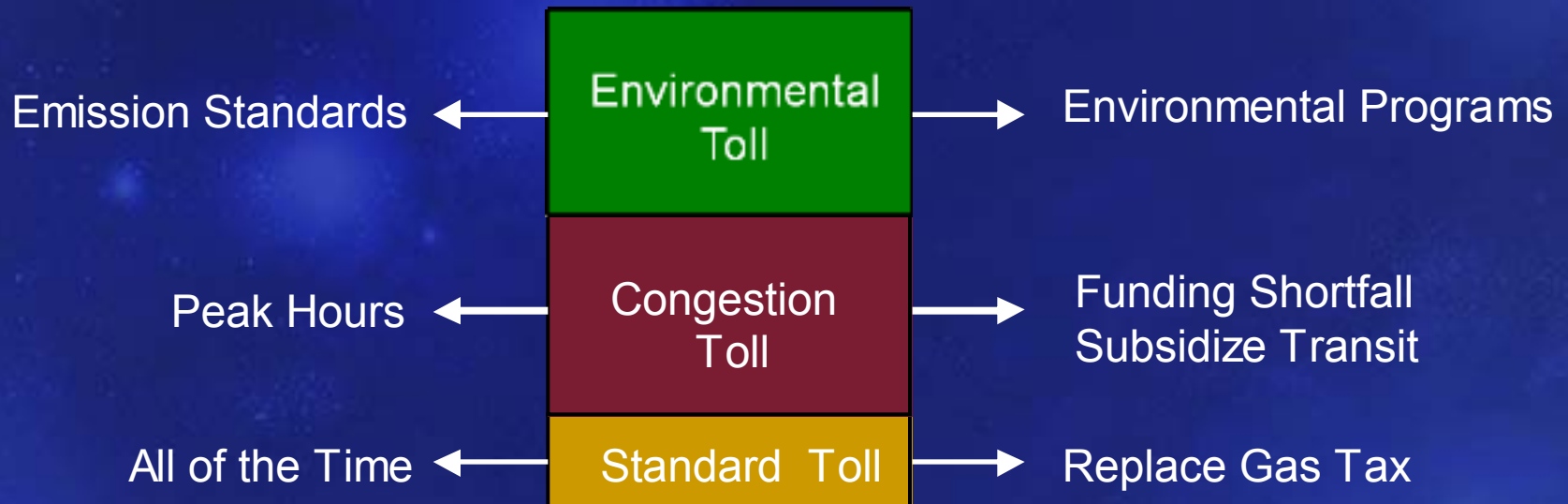
The Market Will Demand it!

- Tolling technology allows for total pricing
- All roads are priced all of the time
- Squeeze capacity out of roads and cars

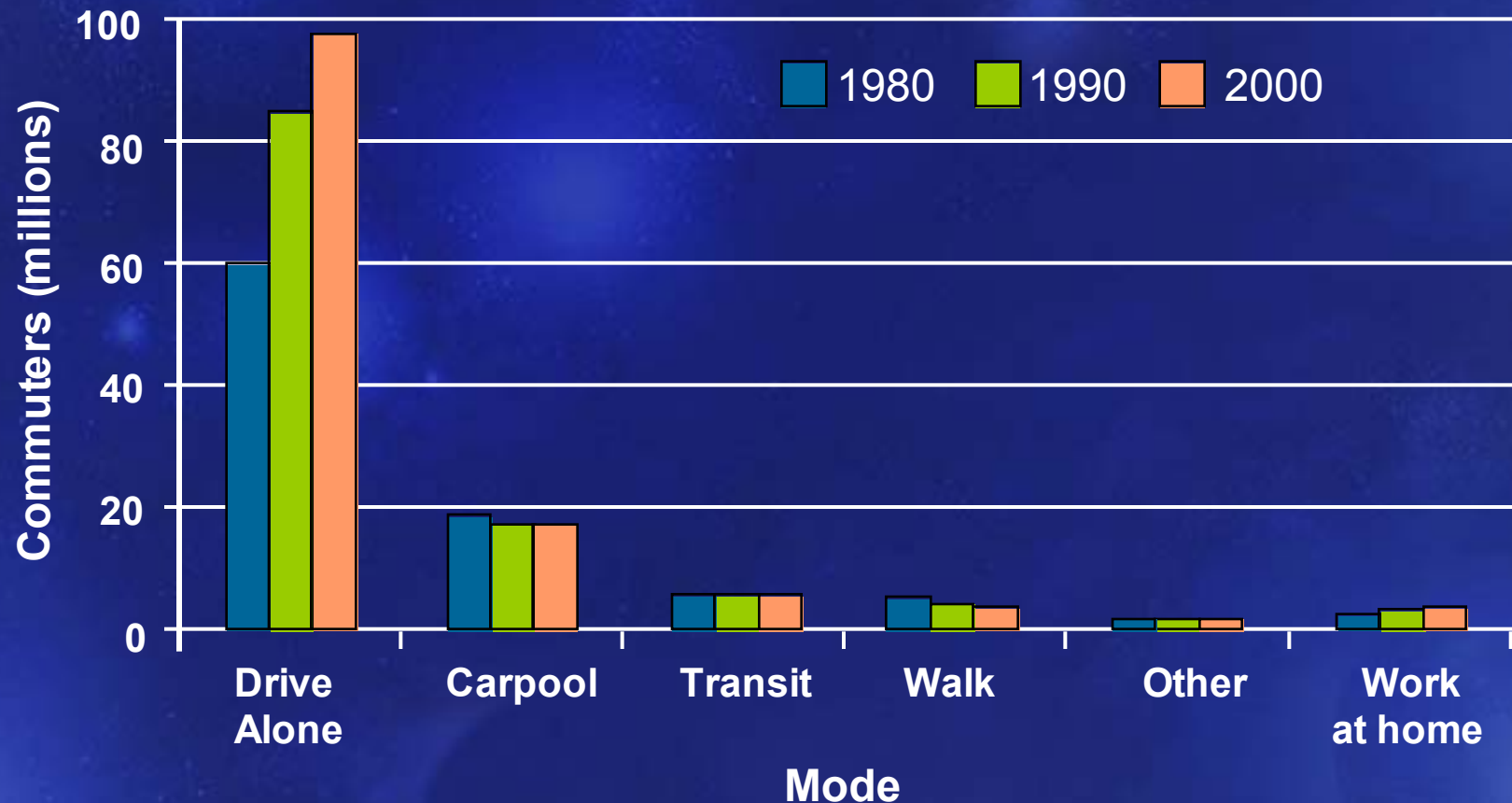
21st Century Revenue Model

Charging

Funding

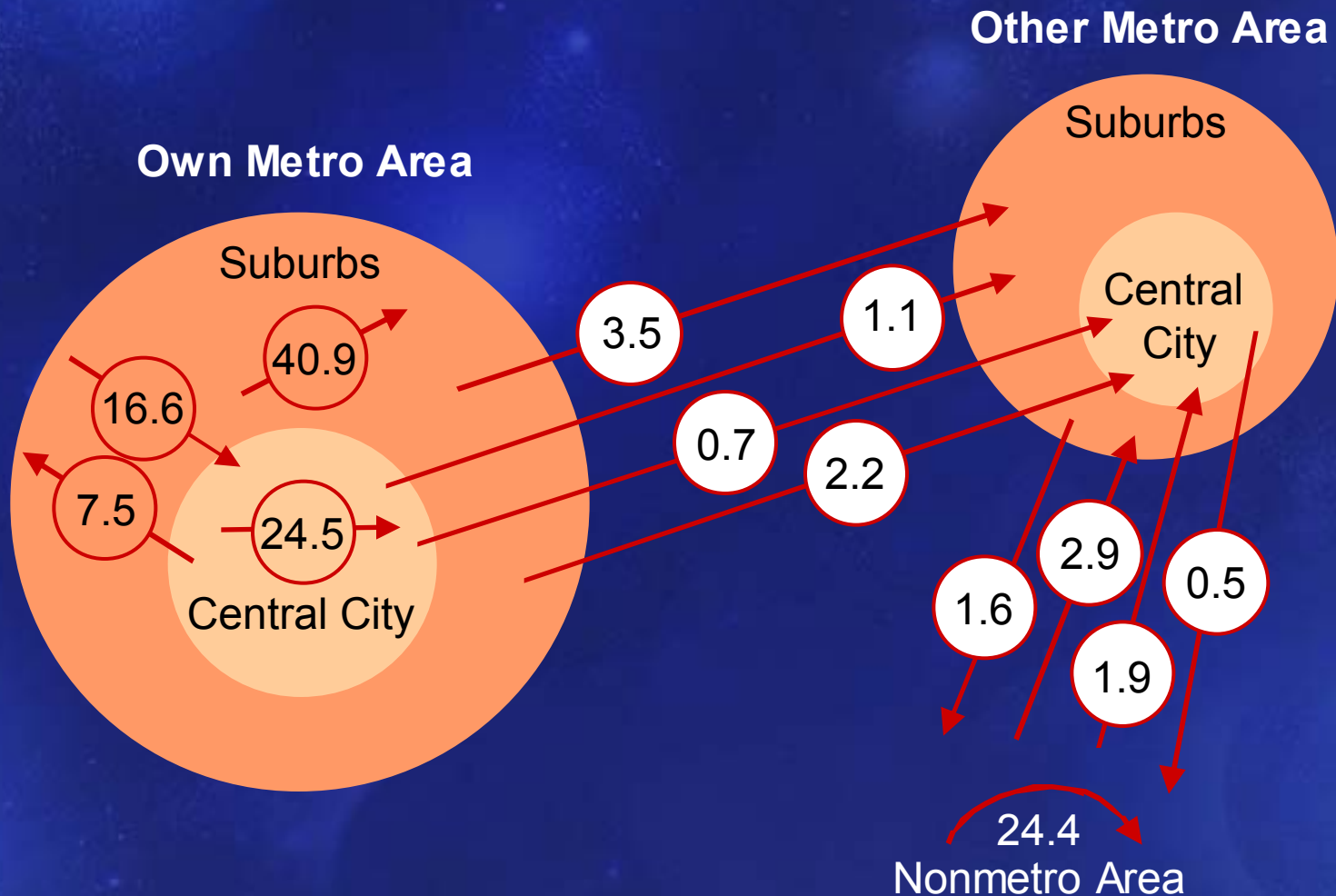


Modal Trends Summary, 1980-2000*



*Commuting in America III: Alan E. Pisarski

Metropolitan Flow Map (Millions of Commuters)*



Problems We Want To Solve

- Define a new revenue model for funding transportation
- Manage congestion on Roads



Congestion Today

Level of Service

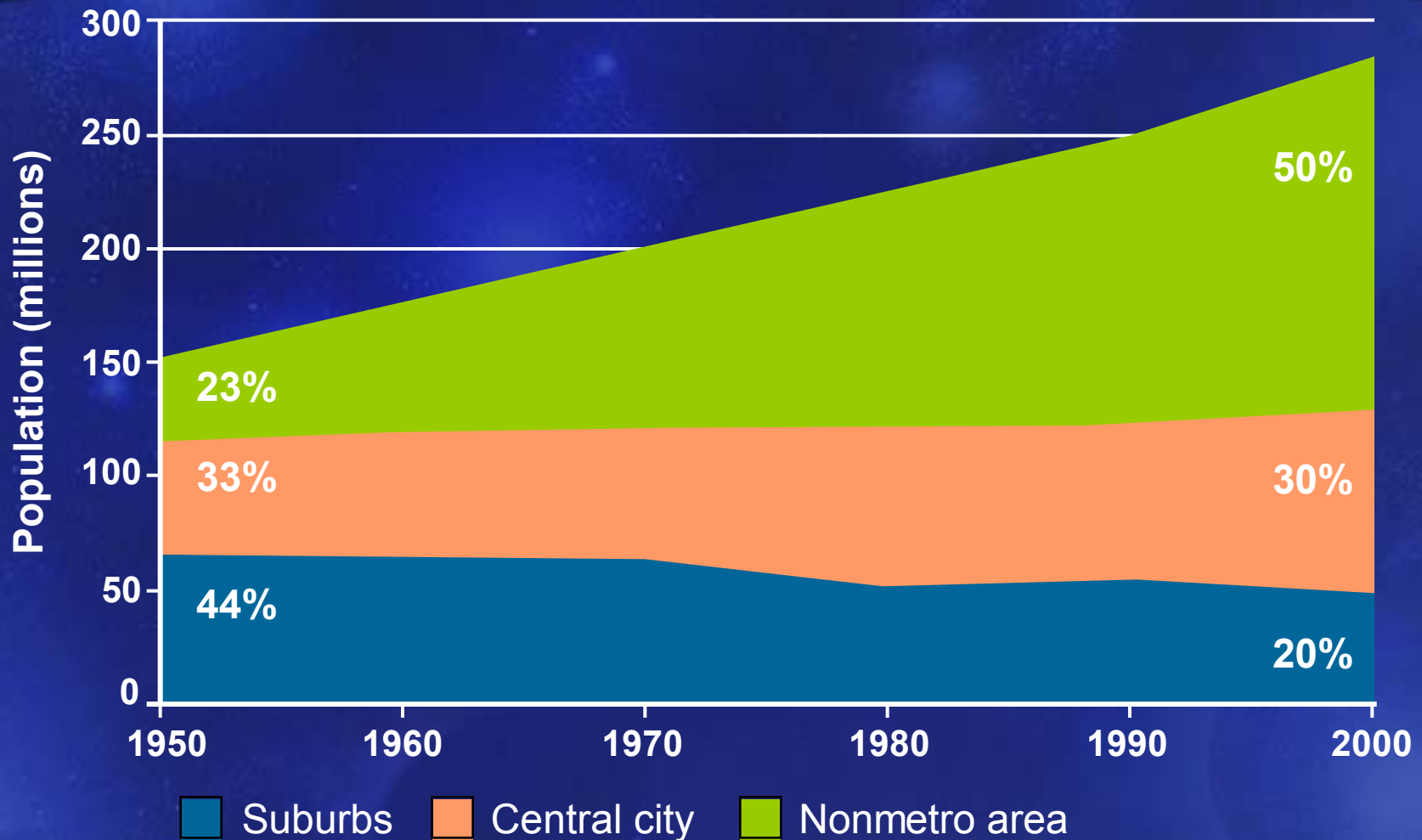


Congestion Today

Level of Service



Long-Term Population Trends by Major Geographic Groupings*



*Commuting in America III: Alan E. Pisarski

Current Reality



Future Reality

“The best way to predict
the future is to invent it.”

-Alan Kay

THE Future Reality?

Today

Traditional widening
New limited access
Beginnings of Xpress lanes & variable pricing

25 Years

Increased Xpress lanes & variable pricing
Evolution to smarter roadways

50 Years

Total capacity pricing
Limited vehicles in urban core

How do we deliver the Future?

- Acknowledge Reality
- Educate Stakeholders and Decision Makers
- Use Policy to Encourage the Market
- Prove the Business and Financial model
 - Interstate Express and HOT Lanes
 - Tolloed Lanes with Bus Rapid Transit
 - Congestion Pricing

A Journey Into the Future



A 50 Year Vision for
Surface Transportation